WORK UNIT SUMMARIES

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DEFENSE LOGISTICS AGENCY

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Hubert E. Sauter

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Administrator
Defense Documentation Center

62344

DEPARTMENT OF DEFENSE

RESEARCH AND TECHNOLOGY WORK UNIT INFORMATION SYSTEM

REPORT ON

WORK UNIT SUMMARIES (U)

DDC REPORT NO. CX1699 APR 19, 1979

REQUESTED BY

JEFF SCHMIDT, 714-833-6743

USER CODE: 01530

PREPARED BY

DEFENSE DOCUMENTATION CENTER
FOR
SCIENTIFIC AND TECHNICAL INFORMATION
CAMERON STATION, ALEXANDRIA, VIRGINIA

A C C O U N T A B I L I T Y R E C O R D

RESEARCH AND TECHNOLOGY WORK UNIT INFORMATION SYSTEM

D D C S E A R C H C O N T R O L N O. CX1699

A LIST OF THE SELECTED RECORDS FOLLOW. EACH ENTRY SHOWS: (1) THE AGENCY ACCESSION NUMBER, (2) THE SECURITY CLASSIFICATION CODE OF THE REPORT, WORK, TITLE, KEYWORDS, TECHNICAL OBJECTIVE, APPROACH AND PROGRESS, (3) THE RELEASE LIMITATION CODE AND (4) THE REGRADING CODE.
* INDICATES THERE IS NO NARRATIVE DATA PRESENT.

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LC HEW ONLY

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FR FORMERLY RESTRICTED DATA. INFORMATION WHICH HAS BEEN REMOVED FROM THE RESTRICTED DATA CATEGORY PURSUANT TO SECTION 142(A) OF THE ATOMIC ENERGY ACT OF 1954 AS AMENDED.

DDC SEARCH CONTROL NO. CX1699

AGENCY ACCESSION	RPT	WRK	TLE	KEY WRD	TCH OBJ	APR	PRG	REL LIM	CON ACC	RE-GRD	EVL
2 Rejects removed											
DA0F8948	U	U	U	U	U	U	U	NL	Y		*
DA0F9122	U	U	U	U	U	U	U	NL	Y		*
DA0F9230	U	U	U	U	U	U	U	NL	Y		*
DA068971	U	U	U	U	U	U	U	NL	Y		*
DF041700	U	U	U	*	U	U	U	NL	Y		*
DH001582	U	S	U	U	U	U	U	GU	Y		*
DH002424	U	U	U	U	U	U	U	GU	Y		*
DH002920	U	U	U	U	U	U	U	GU	Y		*
DH003413	U	U	U	U	U	U	U	GU	Y		*
DN123370	U	U	U	U	U	U	U	NL	Y		*
DN475503 2	U	U	U	U	U	U	U	NL	Y		*

CX1699 STATISTICS APR 19, 1979 (790419)

DIGRAPH	UNCLASSIFIED	CONFIDENTIAL	SECRET	TOTAL
DA	4	0	0	4
DF	1	0	0	1
DH	4	0	0	4
DN	2	0	0	2
TOTAL	11	0	0	11

TITLE: (U) SURFACE ACOUSTIC WAVE PROPAGATION ON MAGNETIC SUBSTRATES 14769-P

PERFORMING ORGANIZATION
UNIVERSITY OF CALIFORNIA IRVINE
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DAAG29 77 G0101

PERFORMANCE METHOD
GRANT

CONTRACT/GRANT AMOUNT
$ 15,956

DATE OF SUMMARY
14 APR 78

START DATE
FEB 77

ESTIMATED COMPLETION DATE
FEB 79

KIND OF SUMMARY
CHANGE

SUMMARY SECURITY
UNCLASSIFIED

WORK SECURITY
UNCLASSIFIED

SCIENTIFIC AND TECHNOLOGICAL AREAS
005500 ELECTRICITY AND MAGNETISM
012300 PARTICLE PHYSICS
017000 WAVE PROPAGATION

KEYWORDS: (U) (U) FERROMAGNETIC MATERIALS ;(U) SPINNING ;(U) SURFACE WAVES ;(U) ELASTIC WAVES ;(U) ULTRASONIC WAVES ;(U) SIGNAL PROCESSING

OBJECTIVE: (U) TO CONDUCT A THEORETICAL STUDY ON THE PROPAGATION OF ULTRASONIC SURFACE WAVES COUPLED TO SPIN WAVES ON THE SURFACE OF FERROMAGNETIC SUBSTRATES, SPECIFICALLY TAKING INTO ACCOUNT THE EFFECTS OF SPIN PINNING AND OVERLAYER STRUCTURE. RELEVANCE. THE RESEARCH HAS POTENTIAL RELEVANCE TO FUTURE EXTENSIONS OF PRESENT SURFACE ACOUSTIC WAVE DEVICES FOR SIGNAL PROCESSING INTO A HIGHER FREQUENCY REGIME WHICH MAY ALSO USE THE NONRECIPROCAL NATURE OF THE ATTENUATION OF SUCH WAVES.

APPROACH: (U) A SYSTEM OF COUPLED BLOCH, MAXWELL AND MAGNETOELASTIC WAVE EQUATIONS ARE TO BE USED TOGETHER WITH AN

62346

EQUATION THAT TAKES ACCOUNT OF SPIN PINNING. ADDITIONAL BOUNDARY CONDITIONS WILL BE INTRODUCED FOR THE LAYERED STRUCTURES. ADVANCED COMPUTER ALGEBRAIC MANIPULATION TECHNIQUES WILL ALSO BE USED.

CONTRACTOR ACCESS: YES

ACCESSION NUMBER: DA0F8948

TITLE: (U) COHERENT RADIATION FROM RELATIVISTIC BEAM-PLASMA INSTABILITIES 15118-P

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DAAG29-78-G-0020

PERFORMANCE METHOD
GRANT

CONTRACT/GRANT AMOUNT
$ 66,870

DATE OF SUMMARY	START DATE	ESTIMATED COMPLETION DATE
09 JAN 79	NOV 77	OCT 79

KIND OF SUMMARY	SUMMARY SECURITY	WORK SECURITY
CHANGE	UNCLASSIFIED	UNCLASSIFIED

SCIENTIFIC AND TECHNOLOGICAL AREAS
013000 PLASMA PHYSICS
005500 ELECTRICITY AND MAGNETISM
012300 PARTICLE PHYSICS

KEYWORDS: (U) (U) COHERENT ELECTROMAGNETIC RADIATION ;(U) HIGH POWER ;(U) EXCITATION ;(U) INSTABILITY ;(U) ELECTRON BEAMS ;(U) RESONANCE ;(U) MILLIMETER WAVES ;(U) SUBMILLIMETER WAVES ;(U) EMISSION SPECTRA ;(U) RADIATION DAMAGE ;(U) X-RAY

OBJECTIVE: (U) TO OBTAIN HIGH POWER MM AND SUB-MM RADIATION BASED ON THE ELECTROMAGNETIC EMISSION FROM PLASMAS IN WHICH INSTABILITIES ARE EXCITED BY A RELATIVISTIC ELECTRON BEAM. RELEVANCE. THIS PROGRAM IS RELEVANT TO THE MM AND SUB-MM PROGRAM THAT IS UNDERWAY AT HDL AS WELL AS PROGRAMS AT OTHER DOD LABORATORIES. HDL IS ALSO INTERESTED IN THIS RESEARCH AS A SOURCE OF X-RAY RADIATION FOR THEIR RADIATION DAMAGE STUDIES.

APPROACH: (U) EXPERIMENTAL AND THEORETICAL EFFORTS WILL BE CARRIED OUT TO DETERMINE THE PRECISE BEAM-PLASMA RESONANCE, TO

62348

UNDERSTAND THE SPECTRUM OF THE EMITTED RADIATION, TO DETERMINE HOW THE PEAK OF THE RADIATION CAN BE MOVED TO SUB-MM WAVELENGTHS, AND TO DETERMINE THE INFLUENCE OF BOUNDARIES ON EMISSION SPECTRUM AND EFFICIENCY.

CONTRACTOR ACCESS: YES

ACCESSION NUMBER: DA0F9122

TITLE: (U) THE EFFECTS OF SURFACE ROUGHNESS ON THE PROPERTIES OF SOLIDS 15902-P

PERFORMING ORGANIZATION
UNIVERSITY OF CALIFORNIA IRVINE
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DAAG29-78-G-0108

PERFORMANCE METHOD
GRANT

CONTRACT/GRANT AMOUNT
$ 23,135

DATE OF SUMMARY	START DATE	ESTIMATED COMPLETION DATE
23 JUN 78	JUL 78	JUN 80

KIND OF SUMMARY	SUMMARY SECURITY	WORK SECURITY
NEW	UNCLASSIFIED	UNCLASSIFIED

SCIENTIFIC AND TECHNOLOGICAL AREAS
015700 SOLID STATE PHYSICS
005700 ELECTRONICS AND ELECTRICAL ENGINEERING
017000 WAVE PROPAGATION

KEYWORDS: (U) (U) SURFACE ROUGHNESS ;(U) GREENS FUNCTION ;(U) THIN FILMS ;(U) ELECTRON MOBILITY ;(U) ELECTRIC CHARGE ;(U) PLASMONS ;(U) RAYLEIGH WAVES ;(U) POLARITONS ;(U) INTERFACES ;(U) FIELD EFFECT;(U) TRANSISTORS ;(U) METAL OXIDE SEMICONDUCTORS ;(U) PHOTOEMISSION ;(U) ADHESION ;(U) VAN DER WAALS FORCES ;(U) TARGET RECOGNITON

OBJECTIVE: (U) IN ALL THE SIX CASES TO BE INVESTIGATED, ONE FUNDAMENTAL UNDERLYING QUALITY, THE DYNAMICAL GREEN'S FUNCTION, WILL BE CALCULATED. THE EFFECTS OF ROUGHNESS ARE INTRODUCED BY TRANSFORMING THE EQUATIONS OF THE GREEN'S FUNCTION INTO AN EQUATION OF AVERAGED GREEN'S FUNCTION. RELEVANCE. THE RESEARCH IS POTENTIALLY RELEVANT TO (1) A NUMBER OF ELECTRONIC DEVICES WHERE IMAGE POTENTIAL DISTORTIONS DUE TO INTERFACE EFFECTS PLAY A ROLE, (2) ELECTRON MOBILITY IN MOSFET'S, (3) THE ENHANCEMENT OF

62350

PHOTOEMISSION BY COUPLING THE RADIATION TO SURFACE PLASMONS VIA SURFACE ROUGHNESS, (4) PHYSISORPTION AND ADHESION VIA THE CONTROL OF VAN DER WAALS FORCES, (5) LASER SPECKLE PATTERNS AND RELATED TARGET RECOGNITION PROBLEMS.

APPROACH: (U) TO INVESTIGATE THE EFFECT OF SURFACE ROUGHNESS ON (1) THE MOTION OF ELECTRONS IN THIN FILMS, (2) THE IMAGE POTENTIAL OF A POINT CHARGE IN VACUUM NEAR THE ROUGH SURFACE, (3) THE VAN DER WAALS POTENTIAL BETWEEN TWO SEMI-INFINITE SOLIDS SEPARATED BY VACUUM, (4) THE SURFACE PLASMON DISPERSION RELATIONS, (5) THE PROPAGATION OF RAYLEIGH WAVES ALONG THE STRESS-FREE SURFACE OF A SEMI-INFINITE ELASTIC MEDIUM, (6) THE ATTENUATION AND FREQUENCY SHIFT OF SURFACE POLARITONS.

CONTRACTOR ACCESS: YES

ACCESSION NUMBER: DAOF9230

TITLE: (U) MIDWINTER SOLID STATE RESEARCH CONFERENCE 16092-P

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DAAG29-78-M-0176

PERFORMANCE METHOD
CONTRACT

CONTRACT/GRANT AMOUNT
$ 4,190

DATE OF SUMMARY
11 JAN 79

START DATE
OCT 78

ESTIMATED COMPLETION DATE
MAR 79

KIND OF SUMMARY
NEW

SUMMARY SECURITY
UNCLASSIFIED

WORK SECURITY
UNCLASSIFIED

SCIENTIFIC AND TECHNOLOGICAL AREAS
015700 SOLID STATE PHYSICS

KEYWORDS: (U) (U) NONLINEAR PHENOMENA ;(U) SOLITONS ;(U)
HYDRODYNAMIC INSTABILITIES ;(U) LASER INSTABILITY ;(U)
BIFURCATION ;(U) NONEQUILIBRIUM SUPERCONDUCTORS;(U)
SUPERCONDUCTORS

OBJECTIVE: (U) THE OBJECTIVE OF THE CONFERENCE IS TO FOCUS ON THE FRONTIERS OF THE PHYSICS OF HIGHLY NONLINEAR PHENOMENA IN CONDENSED MATTER DRAWING FROM EXCHANGE OF IDEAS BETWEEN SCIENTIST IN VARIOUS DISCIPLINES WHERE THESE PHENOMENA ARISE. RELEVANCE. HYDRODYNAMIC INSTABILITIES (TURBULENCE, BENARD AND TAYLOR INSTABILITIES), SOLITONS, INSTABILITIES IN LASERS, AND THE GENERAL THEORY OF NONLINEAR PHENOMENA AND BIFURCATION ARE TOPICS RELEVANT TO THE ARMY IN A LARGE NUMBER OF CONTEXTS.

APPROACH: (U) THE CONFERENCE WILL INCLUDE DISCUSSION OF SOLITONS IN SOLIDS, HYDRODYNAMIC INSTABILITIES, INSTABILITIES IN LASERS, THE MATHEMATICAL PHYSICS OF NONLINEAR PHENOMENA AND BIFURCATION, NONEQUILIBRIUM SUPERCONDUCTORS, AND SPATIAL INSTABILITIES IN

CHEMICAL REACTIONS.

CONTRACTOR ACCESS: YES

ACCESSION NUMBER: DAOG8971

62352

DDC REPORT NUMBER CX1699, APR 19, 1979
DDC FORMAT 80075

TITLE: (U) THE INTERACTION OF ELECTROMAGNETIC RADIATION WITH SOLID MATERIALS

PERFORMING ORGANIZATION
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CALIF

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F49620-78-C-0019

PERFORMANCE METHOD
CONTRACT

CONTRACT/GRANT AMOUNT
$ 99,993

DATE OF SUMMARY
26 OCT 78

START DATE
SEP 75

ESTIMATED COMPLETION DATE
DEC 78

KIND OF SUMMARY
CHANGE

SUMMARY SECURITY
UNCLASSIFIED

WORK SECURITY
UNCLASSIFIED

SCIENTIFIC AND TECHNOLOGICAL AREAS
015700 SOLID STATE PHYSICS
013600 QUANTUM THEORY

KEYWORDS:

OBJECTIVE: (U) AF FUNCTION-AEROSPACE COMMUNICATIONS SURVEILLANCE AND DETECTION SYSTEMS REQUIRE ELECTRO-OPTICAL DEVICES WHICH EXPLOIT AND SPECIAL PROPERTIES AND INTERACTIONS OF INFRARED RADIATION WITH SOLID STATE MATERIALS. OPPORTUNITY-INFRARED MATERIALS RESEARCH HAS HIGH POTENTIAL FOR AIRBORNE AND SATELLITE APPLICATIONS. OBJECTIVE-THIS IS A THEORETICAL RESEARCH EFFORT TO INVESTIGATE THE INTERACTION OF ELECTROMAGNETIC RADIATION WITH SOLID MATERIALS, TO INVESTIGATE FUNDAMENTAL PROCESSES AND ELEMENTARY EXCITATIONS THAT OCCUR MAINLY IN THE INFRARED REGION OF THE ELECTROMAGNETIC SPECTRUM, AND TO STUDY BULK AND SURFACE OPTICAL PROPERTIES AS WELL AS NONLINEAR OPTICAL PHENOMENA IN SOLIDS. HOW WORK CONTRIBUTES-THE FAR INFRARED OPTICAL PROPERTIES OF THESE MATERIALS ARE IMPORTANT TO THE DEVELOPMENT OF INFRARED DETECTORS AND COHERENT SOURCES INTEGRATED OPTICS AND ELECTRO

62354

OPTICAL TECHNIQUES, AND HIGH ENERGY INFRARED LASER WINDOWS AND MIRRORS AS WELL AS INTERACTIONS OF MATERIALS SUBJECTED TO LASER BEAMS.

APPROACH: (U) UTILZE EXISTING AND DEVELOP NEW SOPHISTICATED THEORETICAL AND COMPUTIONAL TECHNIQUES TO INVESTIGATE THE INTERACTION OF ELECTROMAGNETIC RADIATION WITH SOLID MATERIALS. INVESTIGATE FUNDAMENTAL PROCESSES AND ELEMENTARY EXCITATIONS THAT OCCUR MAINLY IN THE INFRARED REGION OF THE ELECTROMAGNETIC SPECTRUM. STUDY, THEORETICALLY, BULK OPTICAL PROPERTIES OF SOLIDS, SURFACE OPTICAL PROPERTIES OF SOLIDS, AND NONLINEAR OPTICAL PHENOMENA IN SOLIDS. STUDY THE CONSEQUENCES OF THE INELASTIC SCATTERING OF ELECTRONS FROM IONIZED IMPURTIES IN A DOPED SEMICONDUCTOR ON INFRARED ABSORPTION IN THE DRUDE TAIL. STUDY THE ADDITIONAL STRUCTURE INTRODUCED INTO THE INFRARED ABSORPTION SPECTRUM OF A P-TYPE SEMICONDUCTOR, OF THE ZINCBLENDE STRUCTURE, WHEN THIS ABSORPTION BAND OVERLAPS THE TRANSVERSE OPTICAL PHONON ABSORPTION LINE. STUDY THE LINE SHAPE FOR INFRARED ABSORPTION BY LOCALIZED VIBRATION MODES (DUE TO H-ION IMPURITIES IN ALKALI-HALIDE CRYSTALS). STUDY THE CONTRIBUTION OF ELECTRON ELECTRON SCATTERING TO THE REAL PART OF THE CONDUCTIVUTY OF A METAL IN THE INFRARED SPECTRAL RANGE. INVESTIGATE THE EFFECTS OF IMPURITIES ON INTERBAND ABSORPTION IN SOLIDS. INVESTIGATE THE INELASTIC SCATTERING OF LIGHT FROM A PLASMON COUPLED TO LOCALIZED VIBRATION MODES IN SEMICONDUCTORS. ATTEMPT TO CONSTRUCT A THEORY OF THE REFRACTION AND REFLECTION OF SURFACE POLARITONS AT INTERFACES FOR THE INFRARED SPECTRAL INTERVAL, AND A THEORY OF THE BRILLOUIN SCATTERING OF LIGHT FROM AN OPAQUE SOLID.

CONTRACTOR ACCESS: YES

ACCESSION NUMBER: DF041700

TITLE: (U) ELECTRON BEAM SWITCHING EXPERIMENT

PERFORMING ORGANIZATION
UNIVERSITY OF CALIFORNIA,
IRVINE IRVINE, CALIF 92664

RESPONSIBLE GOVT ORGANIZATION
DEFENSE NUCLEAR AGENCY
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RYNN, N

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CONTRACT/GRANT NUMBER
DNA01-74-C-0056

PERFORMANCE METHOD
CONTRACT

CONTRACT/GRANT AMOUNT
$ 100,000

DATE OF SUMMARY	START DATE	ESTIMATED COMPLETION DATE
14 MAY 76	SEP 73	DEC 74

KIND OF SUMMARY	SUMMARY SECURITY	WORK SECURITY
CHANGE	UNCLASSIFIED	SECRET

SCIENTIFIC AND TECHNOLOGICAL AREAS
012200 PARTICLE ACCELERATORS
006500 ELECTRICITY AND MAGNETISM
008700 LABORATORIES, TEST FACILITIES AND TEST EQUIPMENT

KEYWORDS: (U) (U) ENERGY STORAGE ;(U) ELECTRON ACCELERATORS ;(U) ELECTROSTATIC ENERGY STORAGE ;(U) PULSED ELECTON ACCELERATORS (U) ELECTRON BEAMS ;

OBJECTIVE: (U) DEVELOP ULTRA HIGH POWER SOURCES FOR SIMULATING NUCLEAR WEAPON EFFECTS AND HAVING ENERGY STORAGE CAPABILITIES SIGNIFICANTLY EXCEEDING PRESENT SIMULATORS.

APPROACH: (U) DEVELOP THE PROPOSED TECHNIQUE OF ELECTRON BEAM TRAPPING AND MAGNETIC COMPRESSION USING A MAGNETIC MIRROR GEOMETRY. THE SUCCESS OF THIS TECHNIQUE WOULD OBVIATE THE CONVENTIONAL PULSE SHAPING NETWORK. HIGH DENSITY ENERGY STORAGE WOULD BE ACHIEVED USING AMODULE MADE BY COUPLING A MARX GENERATOR DIRECTLY TO A 'FOIL-LESS' DIODE.

CONTRACTOR ACCESS: YES

UNCLASSIFIED
DDC REPORT NUMBER CX1699, APR 19, 1979
DDC FORMAT B0075

ACCESSION NUMBER: DH001582

62356

TITLE: (U) ELECTRON BEAM SWITCHING EXPERIMENT

PERFORMING ORGANIZATION
UNIVERSITY OF CALIFORNIA
BERKELEY, CA 94720

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CONTRACT/GRANT NUMBER
DNA 001-74-C-0056

PERFORMANCE METHOD
CONTRACT

CONTRACT/GRANT AMOUNT
$ 99,000

DATE OF SUMMARY
26 MAR 76

START DATE
SEP 75

ESTIMATED COMPLETION DATE
NOV 76

KIND OF SUMMARY
NEW

SUMMARY SECURITY
UNCLASSIFIED

WORK SECURITY
UNCLASSIFIED

SCIENTIFIC AND TECHNOLOGICAL AREAS
005800 ENERGY STORAGE
005500 ELECTRICITY AND MAGNETISM
013000 PLASMA PHYSICS

KEYWORDS: (U) (U) ELECTRON BEAM ;(U) ENERGY STORAGE ;(U) SWITCHING ;(U) PULSED RADIATION ;(U) X-RAY PRODUCTION

OBJECTIVE: (U) PROPOSED RESEARCH WILL BE EVALUATING ENERGY STORAGE DEVICES THAT INVOLVE ACCUMULATION OF ELECTRONS IN A MAGNETIC TRAP AND THE RAPID RELEASE OF THE ENERGY BY MAGNETIC SWITCHING.

APPROACH: (U) SIGNIFICANT RESULTS HAVE BEEN OBTAINED WITH A SMALL SCALE EXPERIMENT INVOLVING A THERMIONIC INJECTOR AND FAST MAGNETIC COMPRESSION. THE BASIC PRINCIPLE OF THE METHOD HAS NOW BEEN ESTABLISHED. FURTHER STUDIES OF THE SYSTEM ARE REQUIRED FOR PRACTICAL APPLICATIONS. IN ADDITION, THE USE OF A PULSE LINE AND DIODE FOR INJECTION INTO STATIC FIELDS WILL BE EVALUATED. ANOTHER METHOD TO PRODUCE SHORT INTENSE RADIATION PULSES WILL BE STUDIED WHICH INVOLVES AN ARC PLASMA SOURCE WHICH PRODUCES A PINCH IN A VERY SMALL REGION LIKE AN EXPLODING WIRE.

62358

CONTRACTOR ACCESS: YES

ACCESSION NUMBER: DH002424

TITLE: (U) SPARK GAP EXPERIMENT

PERFORMING ORGANIZATION
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CONTRACT/GRANT NUMBER
DNA001-77-C-0003

PERFORMANCE METHOD
CONTRACT

CONTRACT/GRANT AMOUNT
$ 98,000

DATE OF SUMMARY
15 NOV 76

START DATE
JAN 76

ESTIMATED COMPLETION DATE
NOV 77

KIND OF SUMMARY
NEW

SUMMARY SECURITY
UNCLASSIFIED

WORK SECURITY
UNCLASSIFIED

SCIENTIFIC AND TECHNOLOGICAL AREAS
013000 PLASMA PHYSICS
013200 POWER SOURCES
005500 ELECTRICITY AND MAGNETISM

KEYWORDS: (U) (U) HIGH DENSITY Z-PINCH ;(U) GAS PUFF JET;(U) LASER SCATTERING SYSTEM ;(U) VACUUM SPARK GAP

OBJECTIVE: (U) TO DETERMINE SCALING LAWS FOR RADIATION PRODUCED BY THE HIGH DENSITY Z-PINCH OF EITHER A GAS PUFF JET OR A VACUUM SPARK AND TO INVESTIGATE NEW CONCEPTS FOR GAS FLOW REGULATION AND JET FORMATION.

APPROACH: (U) EXPERIMENTS WILL BE CONDUCTED ON A 10 KJ CAPACITOR BANK AND THE RESULTS COMPARED WITH EXPERIMENTS PREVIOUSLY CONDUCTED AT UCI AT LOWER ENERGY LEVELS AND WITH SIMILAR PUFF GAS WORK BEING CONDUCTED AT PHYSICS INTERNATIONAL CO.

CONTRACTOR ACCESS: YES

ACCESSION NUMBER: DH002920

62360

TITLE: (U) GASEOUS DISCHARGE EXPERIMENT

PERFORMING ORGANIZATION
UNIVERSITY OF CALIFORNIA
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RESPONSIBLE GOVT ORGANIZATION
DEFENSE NUCLEAR AGENCY
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CONTRACT/GRANT NUMBER
DNA001-77-C-0003

PERFORMANCE METHOD
CONTRACT

CONTRACT/GRANT AMOUNT
$ 78,410

DATE OF SUMMARY
20 DEC 77

START DATE
OCT 76

ESTIMATED COMPLETION DATE
NOV 77

KIND OF SUMMARY
NEW

SUMMARY SECURITY
UNCLASSIFIED

WORK SECURITY
UNCLASSIFIED

SCIENTIFIC AND TECHNOLOGICAL AREAS
013200 POWER SOURCES
013000 PLASMA PHYSICS
005500 ELECTRICITY AND MAGNETISM

KEYWORDS: (U) (U) IMPLODING HOLLOW CYLINDER ;(U) Z-PINCH GAS JET ;(U) PLASMA DIAGNOSTICS;(U) LASER INTERFEROMETERY ;

OBJECTIVE: (U) TO DETERMINE THE SCALING LAWS GOVERNING THE RADIATIVE OUTPUT FROM Z-PINCH GAS JETS AND IMPLODING HOLLOW CYLINDERS.

APPROACH: (U) CONDUCT EXPERIMENTS UTILIZING A 20 KJ CAPACITOR BANK SYSTEM TO PROVIDE PINCH CURRENTS OF 1 MA AND THEREFORE OBTAIN THE HIGHER POWER SCALING INFORMATION.

CONTRACTOR ACCESS: YES

ACCESSION NUMBER: DH003413

TITLE: (U) MATERIALS SUPPORT TECHNOLOGY; PHONON AND PHOTON PROCESSES AT SOLID SURFACES

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N00014-76-C-0121

PERFORMANCE METHOD
CONTRACT

CONTRACT/GRANT AMOUNT
$ 50,000

DATE OF SUMMARY
01 DEC 77

START DATE
JUL 75

ESTIMATED COMPLETION DATE
CONT

KIND OF SUMMARY
CHANGE

SUMMARY SECURITY
UNCLASSIFIED

WORK SECURITY
UNCLASSIFIED

SCIENTIFIC AND TECHNOLOGICAL AREAS
017000 WAVE PROPAGATION
012000 OPTICS
015700 SOLID STATE PHYSICS

KEYWORDS: (U) (U) SURFACES ;(U) PHOTONS ;(U) PHONONS ;(U) SOLID STATE ;

OBJECTIVE: (U) ELECTRONIC DEVICE WORK, MATERIALS PREPARATION, AND CRYSTAL GROWTH ARE ALL AREAS WHERE IMPROVED KNOWLEDGE OF SURFACES WILL LEAD TO ENHANCED NAVAL CAPABILITIES. THIS STUDY OF INTERACTIONS OF PHONONS AND PHOTONS WITH SURFACES IS ONE WAY TO IMPROVE OUR KNOWLEDGE OF SURFACES.

APPROACH: (U) THIS WORK TREATS THEORETICALLY THE LATTICE DYNAMICAL PROPERTIES AND THE OPTICAL PROPERTIES OF FREE SURFACES. THE STUDY OF SURFACES EMPHASIZES LATTICE DYNAMICAL PROPERTIES.

CONTRACTOR ACCESS: YES

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